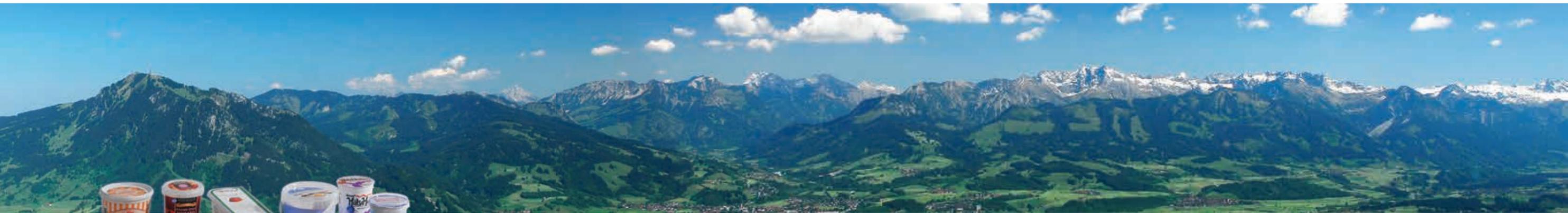




Linear cup fillers

Your product is our only concern





YOGHURT, DAIRY PRODUCTS, SINGLE OR MULTIPLE FLAVOURS, FILLED IN LAYERS OR IN A SWIRL PATTERN



BUTTER, MARGARINE, MAYO, DIPS, SAUCES



JAM, SPREADS, FRUIT PUREE



CREAM CHEESE, CURD, COTTAGE CHEESE



FRESHLY-PREPARED SALADS, NON-PUMPABLE READY-MEALS



DELICATESSEN SALADS, HUMMUS



DESSERTS, SWEETS OF ALL KINDS

Make your vision a reality – step ahead with GRUNWALD

Pure technology is available from many companies but not the experience behind it. GRUNWALD have been a reliable partner in dosing, filling and packing for several decades. Today our filling machinery is used all over the world by the food producing industry, delicatessen industry, meat processing industry, ready-meal producers and the cosmetics industry.

We do everything we can to help you give your product the best reception in the marketplace. Many years experience with a large variety of products, container shapes and lid types makes it possible to develop innovative, individual, flexible and reliable machinery. This guarantees production reliability, easy operation and changeover, giving the maximum speed and flexibility for your products.

Flexibility, speed, value for money, short delivery times and prompt, reliable customer service result in long-lasting partnerships with all of our customers.

Perfect presentation and mouth-watering taste will make your product a bestseller. We understand this and we do all we can to help you to achieve it.

It is a fact that to keep your product as delicious as it was when it was made, the appropriate technology is required. This is one of our key strengths.

Different designs of filler guarantee weight-accurate, non-drip filling and thus the best possible presentation of your products.



FOODLINER 3.000 and 6.000

Our most successful linear machines

Modern, durable technology combines flexibility with good value for money.

There are 4 **FOODLINER** models available. They mainly differ in the production speed.

Model choice is based on the following criteria

- number of lanes
- cup size
- alignment of the cups (wide-side leading or narrow-side leading)
- hygiene standard required
- speed required



FOODLINER 3.000

2-lane machine with 4 docked mobile fillers (see also page 5 bottom right)

FOODLINER 3.000

Width of the machine: 900 mm
1- to 3-lane
Approximately 3,600 – 10,800 cups/h
Dosing range: 20 – 1,700 ml

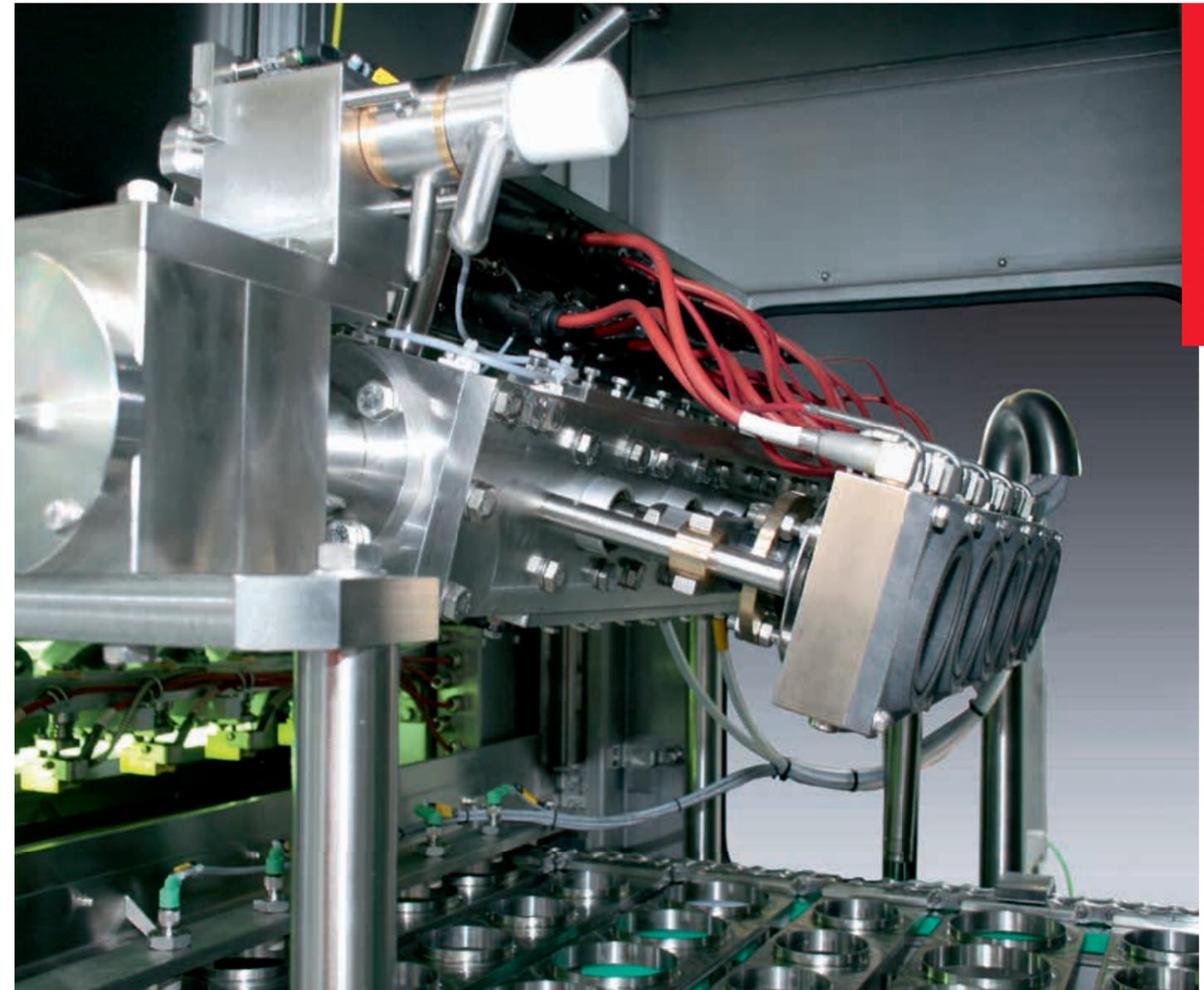
FOODLINER 6.000

Width of the machine: 1,380 mm
2- to 6-lane versions
Approximately 7,200 – 21,600 cups/h
Dosing range: 20 – 1,700 ml



FOODLINER 6.000

6-lane machine with integrated inline fruit mixers for 6 flavours and "EASYCLEAN" dosing system, with low level cup and lid storage systems giving extended storage time at an ergonomic loading height



Sealing station

Showing optional pivoted design giving easy maintenance and cleaning of the sealing plates. The sealing station can be driven by a servo-actuated toggle-press mechanism to give high-speed, low-noise operation if required



FLEXODOS and MOBIFILL

Mobile fillers for non-pumpable and pumpable products

FOODLINER 12.000 and 20.000

Our high-performance linear machines

Highly successful linear machines which combine robust construction with versatile operating stations.

The main feature of the **FOODLINER** is its robust drive design which offers the maximum flexibility by using a combination of servo and mechanical drives.

Applications:

- from portion packs up to buckets
- for all food products, cleaning agents, cosmetics or similar products
- can be combined with different dosing systems and open spaces for manual handfill sections



FOODLINER 12.000

6-lane machine with double advance feed for two different cup sizes incorporating a flexible integrated packer which can handle both container sizes

FOODLINER 12.000

Width of the machine: 1,540 mm

3- to 8-lane versions

Approximately 10,800 – 28,800 cups/h

Dosing range: 20 – 1,700 ml

FOODLINER 20.000

Width of the machine: 1,650 mm

4- to 2 x 10-lane versions

Approximately 14,400 – 50,000 cups/h

Dosing range: 20 – 1,700 ml



FOODLINER 20.000

2 x 8-lane machine in hygienic design, pre-filler in CIP design, main filler for yoghurt with fruit layer; 16-station foil seal lid station for pre-cut seal lids, alternatively film from the reel



Cup sterilisation

double pulsed light high-performance UV(C) cup sterilisation with guaranteed sterilisation rate of at least LOG 4



FOODLINER 12.000

4-lane machine with leak test control for quality check that the cups are closed airtight



FOODLINER UC

Guaranteed for hygiene without peroxide

The FOODLINER UC achieves the highest hygiene standard (min. LOG 4) with highest performance at the same time.

The ultraclean(UC) hygiene concept of the **FOODLINER UC** developed by GRUNWALD is the new standard for inline machines for dairy and food products.

The GRUNWALD ultraclean(UC) hygiene concept guarantees a sterilisation rate of at least LOG 4 for cups, snap-on lids and seal lids even at full cycle speed. It meets all requirements to comply with the highest hygiene levels in production and is completely peroxide-free. For detailed information see HIGHLIGHT special edition "The GRUNWALD ultraclean(UC) hygiene design".



FOODLINER 15.000UC

6-lane machine with integrated tray packer and externally provided foam cleaning system; the complete format changeover on this cup filling machine, including the integrated packer, is carried out within 5 minutes

FOODLINER 15.000UC

Width of the machine: 1,380 mm
4- to 6-lane versions
Approximately 10,000 – 15,000 cups/h
Dosing range: 20 – 1,700 ml

FOODLINER 30.000UC

Width of the machine: 1,650 mm
6- to 10-lane versions
Approximately 50,000 cups/h
Dosing range: 20 – 1,700 ml



FOODLINER 30.000UC

10-lane machine with double pulsed light high-performance UV(C) radiator for cup and seal lid sterilisation. Fillers in aseptic design type "GRUNWALD-EASYCLEAN", laminar flow in the hygiene tunnel



Seal lid sterilisation

using UV(C) light high-pressure radiators. The picture also shows a cup transport with double advance feed which gives quick format changes



FLEXLINER 30.000 UC

8-lane machine with storage system for stackable and non-stackable snap-on lids with automatic feeding



FLEXLINER SP

Our flexible machine

A versatile linear machine which features great flexibility and high production speeds.

With the **FLEXLINER SP** GRUNWALD can meet the quickly changing market demands on products and packing materials.

The cup transport system is designed in such a way that it is independent of the cup shape. Cups are held by two specially shaped transport rails during the machine index. These transport rails are driven by two separate pairs of chains which are themselves driven by two servo-motors.

This transport system gives rapid format changeover without changing the transport rails.

Due to the flexible cup transport and the simple integration of various dosing systems, the filling of products in the full viscosity range in many different container shapes is possible.

The low, narrow design gives excellent access and ergonomic operation. Therefore this machine is especially suited for the integration of handfill sections.

FLEXLINER SP

Width of the machine: 1,150 mm
1- to 3-lane versions
Approximately 2,000 – 6,300 cups/h



FLEXLINER SP

2-lane machine with filler for non-pumpable products and two mobile fillers SEMIDOS for various combinations of pasta, rice, mashed potatoes, meat, vegetables and sauces



FLEXLINER SP

3-lane machine with integrated auger filler and inline weigher for bulk goods and powdery products in trays



Universal transport rails

using specially shaped transport rails the transport of different cup shapes and sizes is possible



FLEXLINER SP

3-lane machine with manual hand fill section and docking stations for mobile fillers

OPTIONS

Format changeovers

Another step towards increased efficiency: the GRUNWALD quick-change system allows format changeovers in 5 - 10 minutes without tools. This means that the whole format change can be accomplished without having to exchange any parts, which is both simpler for the operator and more reliable.

Double advance feed for two different cup sizes

The machine can have two different sets of cup slats permanently installed so the format change simply requires the operator to press a button on the control panel! This saves time and increases efficiency



Automatic change-over of cup setter/ snap-on lid setter

The cup or lid setter is mounted on a pneumatic slide so the format change simply requires the operator to select the correct one on the control panel



Pivoting lid-sealing station

The heat sealing station can be built with two sets of heads so that changeover simply involves turning the heads over



Storage systems

Depending on the cycle speed and the de-nest height, the standard storage time for cups and lids is 3 - 5 minutes.

In order to extend the storage time there are the following options:

- angled or curved magazines normally give a storage time of 5 - 10 minutes
- fully-automatic conveyor-based storage stations for both cups and lids normally give a storage time of up to 20 minutes (see photo)
- feeding of the packing materials from the upper floor via paternoster systems

Storage system

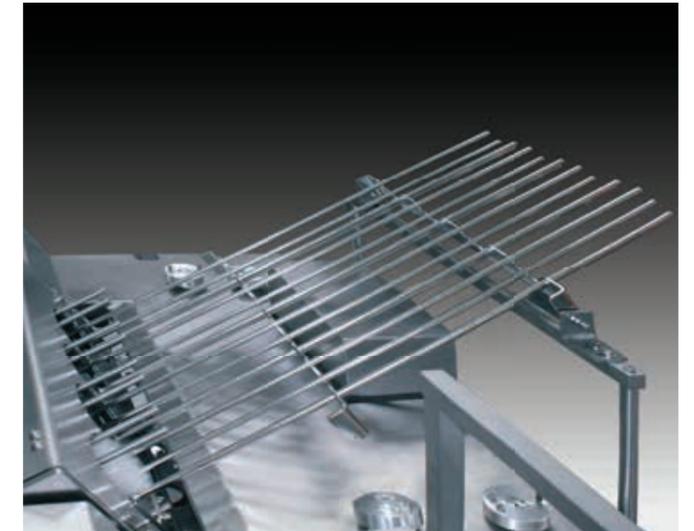
for cups and snap-on lids using stack infeed conveyors

Option: Low level storage to allow packing material replenishment without using platforms



Angled rod lid magazine

For extended storage time of snap-on lids



Seal lid setter with split magazine

This allows easy replenishment of seal lids without having to stop the machine or use a platform. Another option is to fit two lid magazines which can either be used for quick changeover or to extend the lid storage capacity.



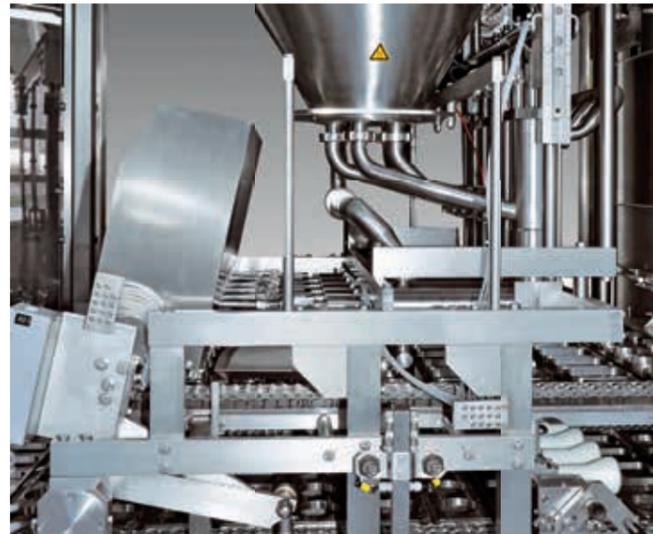
OPTIONS

Dosing systems

Depending on the customer's requirements GRUNWALD linear machines can be equipped with several piston dosing pumps and fillers for non-pumpable products.

Piston dosing system EASYCLEAN

Designed in accordance with EHEDG guidelines to meet the maximum of hygiene requirements



The following dosing systems for various types of product can be integrated in GRUNWALD linear machines:

- multi-head weighers
- chamber fillers
- vibratory fillers
- auger fillers
- bulk filler

All dosing systems can be equipped with a downstream checkweigher or an integrated inline weigher with tendency control. If the product density fluctuates, then dosing volume is re-adjusted fully-automatically.

Product compensation cylinder

for margarine, butter and other pasty products



Inline weighing

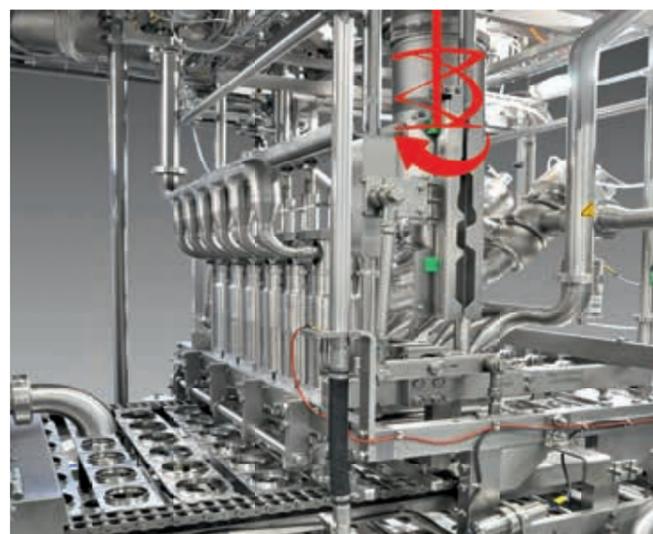
Cups are lifted and weighed by electronic weighing cells directly after the main filling station. The inline weigher immediately assesses the weight of the cups and automatically adjusts the fill volume according to the average weight, thus reducing the number of incorrect cups as well as keeping the standard deviation to a minimum.

This inline weighing system can be used with very high cycle speeds of up to 50 cycles per minute.

Using a reject station for faulty cups, any under- or overweight cups are automatically rejected at the outfeed conveyor area.

Inline fruit dosing

When filling fruit yoghurt the fruit preparation is directly metred and then dynamically mixed just in front of the piston filler. This allows a quick change of the fruit products and the product loss is minimised.



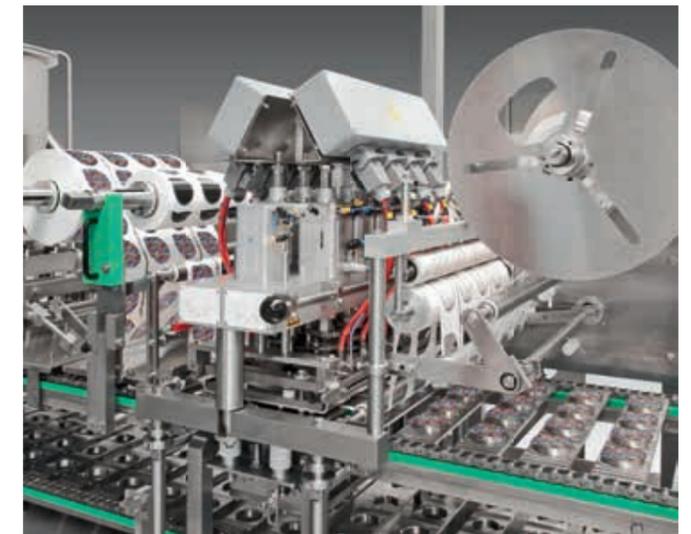
Sealing and cutting station

The option of sealing cups using reel fed film rather than pre-cut lids is available. The sealing film is unwound from the reel and positioned above the cups. In one working cycle the film is heat-sealed onto the cup and cut to match the shape of the cup with a hoop-steel knife.

If printed sealing film is used then the sealing and cutting station can be equipped with an eye mark control.

Sealing and cutting station

with film direction in cup transport direction



Sealing and cutting station

2 x 8-lane with film direction transverse to the cup transport direction



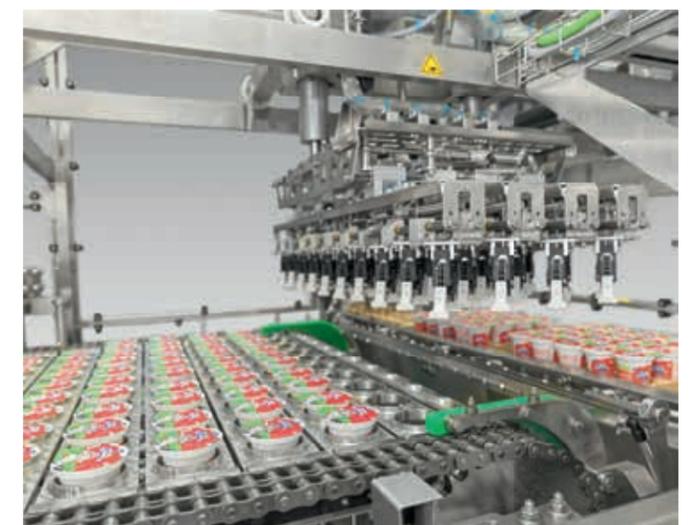
Integrated packer for cups

Filled cups can be taken directly from the FOODLINER cup slats and are then placed into the waiting plastic/cardboard trays.

Depending on the cup closure the cups are gripped by vacuum suckers or by mechanical grippers and are packed into trays in one layer or multiple layers.

Integrated packer for cups

for packing cups in plastic or cardboard trays



OPTIONS

Hygiene levels and Product shelf life

GRUNWALD guarantees, that GRUNWALD filling machines achieve maximum quality, food safety and hygiene standards by using up-to-date, forward-looking technologies.

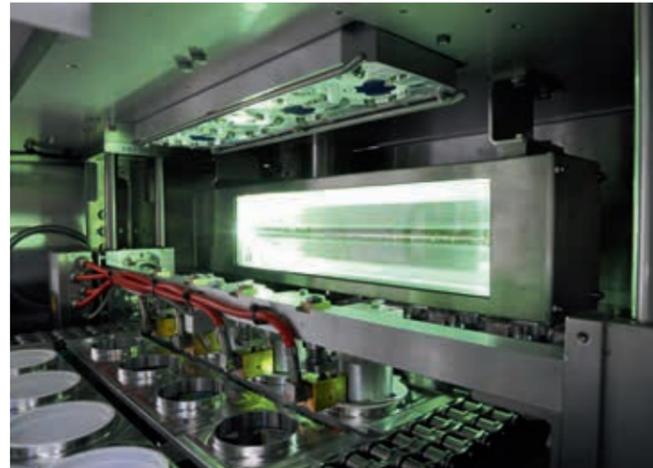
The new GRUNWALD hygiene concept results from the interaction of the following technical developments and innovations:

- **Packing material sterilisation**
using pulsed light high-performance UV(C) radiators with a guaranteed sterilisation rate of at least LOG 4, partly \geq LOG 5, at the maximum cycle speed
- **Pre-filler and main filler**
designed in accordance with EHEDG guidelines to meet the maximum of hygiene requirements
- **Laminar cabin**
designed as semi-tunnel, clean room class 5, Hepa filter EN ISO 14644.

The special gas injection system without evacuation developed by GRUNWALD allows for production without reduction in production speed, that is at full cycle speed (up to 40 cycles/min.) and achieving a remaining oxygen content of $< 1\%$ (with homogeneous products $< 0.5\%$) in the cup at the same time. This new gas injection system offers clear advantages compared to the system used for evacuation / gas injection (MAP procedure) so far.

Packing material sterilisation

using pulsed light high-performance UV(C) radiators with a guaranteed sterilisation rate of at least LOG 4



Hygiene tunnel

All GRUNWALD ultraclean(UC) inline machines are equipped with a special hygiene zone in the area of the open cups, optionally with fully automatic interior cleaning



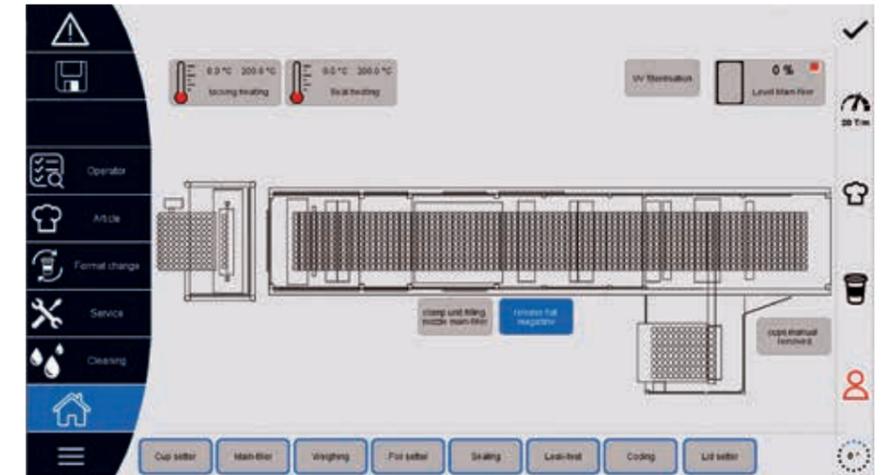
A residual oxygen content $< 0,5\%$

can be achieved with the new GRUNWALD gas injection system without evacuation while the machine is running at 40 cycles/min.



Operator convenience

The standard equipment on all GRUNWALD inline cup filling machines includes a 15.6-inch infrared colour message display. The screen is made of scratch resistant laminated safety glass which makes it much more durable than conventional resistive message displays. The clear design offers excellent levels of operator clarity.

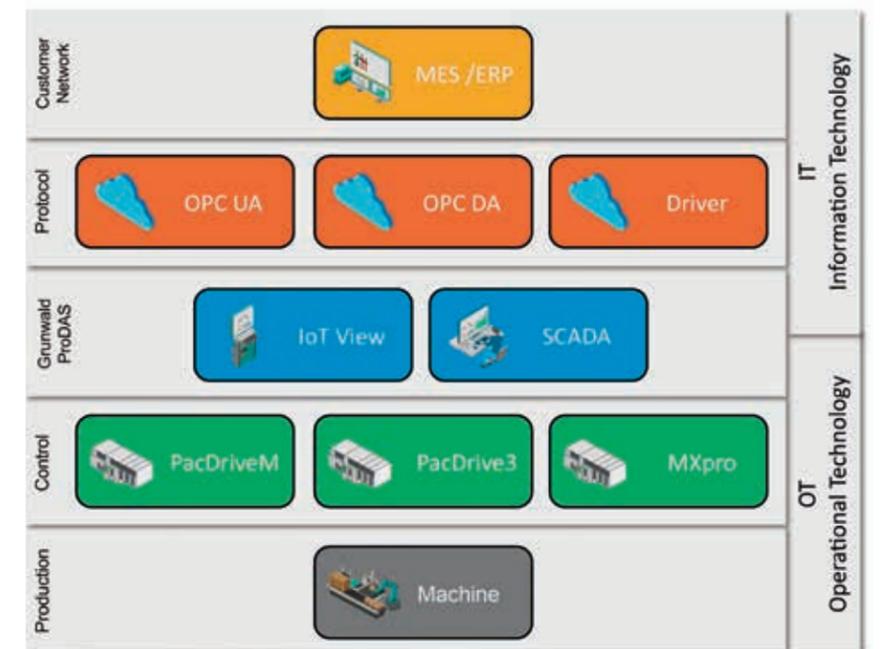


Production Data Management System

Efficient tool for:

- Collection of data by sensors and controls (PDA system **GRUNWALD ProDAS**)
- Data transfer to different interfaces (OPC-Server)
- Evaluation of the system data

The process of producing is optimised for a forward-looking, fast and efficient production. Servicing and maintenance can be planned in an optimal way and changeover times are minimised. The production data management system supports the flexibility of the GRUNWALD system and adapts the filling processes to the requirements of production.



OUR PROGRAMME

You have the product.
We have the technology.

In order to meet our customers' requirements with their different products, flexible machinery is needed.

To solve the most difficult tasks requires continuous innovation from our designers, programmers and development engineers. Forward thinking and customer focussed innovation are the keys for a successful machine concept. The best customised solutions arise from first consulting with our customers to ensure that we fully understand their requirements.

GRUNWALD cup filling machines not only succeed because of their durable and sophisticated design, but also by the range of optional equipment that is available and their versatile modular drive technology.

Drive

- pneumatic – for auxiliary functions
- mechanical – step-by-step cam-driven motion
- electronic – servo drive

Format changeover

- fully-automatic height adjustment
- rapid format changeover system without tools to guarantee a changeover time of between 5 and 10 minutes
- movable stations– format parts do not have to be changed

Extended storage stations for cups and lids

- curved, extended magazine rods for cups and snap-on lids
- fully-automatic storage systems for cups and snap-on lids giving a storage time of 10 - 20 minutes.

Miscellaneous

- leak test station
- inline checkweigher
- reject station for leaky or underweight cups

Fillers

- Piston filler / rotary valve filler
- Piston filler EASYCLEAN designed in accordance with EHEDG guidelines to meet the maximum of hygiene requirements
- Dosing system MOBIFILL for a product changeover time of < 5 Min.

Filling nozzles

- Tappet valve
- Membrane valve
- Rotary valve
- Wire cutter
- Open pipe nozzles

Types of lidding

- Sealing of aluminium/plastic
- Sealing of aluminium/aluminium
- Sealing of aluminium/glass
- Sealing of plastic/plastic - pre-cut or reel fed
- Snap-on lid

Sealing technology

- Pneumatic heat sealing
- Mechanical heat sealing
- Servo-driven heat sealing
- Hydraulic heat sealing
- Ultrasonic sealing

Cleaning

- Manual cleaning
- Intermediate cleaning
- CIP
- SIP

Hygiene

- Laminar airflow
- Sterile air covers
- Cup and lid sterilisation using UV(C) high-pressure radiators

Electric components

- Modern electronic processor control with operator guidance via a graphical message display
- Electronic cam control with dwell time compensation
- Automatic batch start-up and completion programme
- Remote fault diagnosis via internet (or modem)
- Production data acquisition system
- Transfer of production data via OPC server

Rotary-type cup fillers



Universal design HIITPAC / ROTARY

Rotary-type bucket fillers



Universal design HIITPAC XL / ROTARY XL



Ultraclean design ROTARY UC



Ultraclean design FLEXLINER XL

Inline cup fillers



Universal design FOODLINER

Inline bucket fillers



Universal design ROTARY XXL-UC



Ultraclean design FOODLINER UC



Ultraclean design FLEXLINER XL UC

Mobile dosing systems



Stand-alone mobile fillers
MOBIFILL FLEXODOS

SEMIDOS

VIBRATORY FILLER / PEA FILLER

SERVODOS



GRUNWALD company building with the new assembly hall 4 and the multi-storey car park (on the right in the picture)



Design department



Manufacturing hall



Assembly hall

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